BENTON LAKE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

FISCAL YEAR 1974

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BLACK EAGLE, MONTANA

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BENTON LAKE NATIONAL WILDLIFE REFUGE

BLACK EAGLE, MONTANA

Fiscal Year 1974

I. GENERAL

A. Weather Conditions

During the year 14.02 inches of precipitation were recorded at the Great Falls weather station. This amount is right on the annual average of 14.07 inches.

An evaporation and precipitation station was placed in operation on the refuge in May of 1974. It is expected that long term records will show that the refuge receives less precipitation than that recorded at the Great Falls weather station.

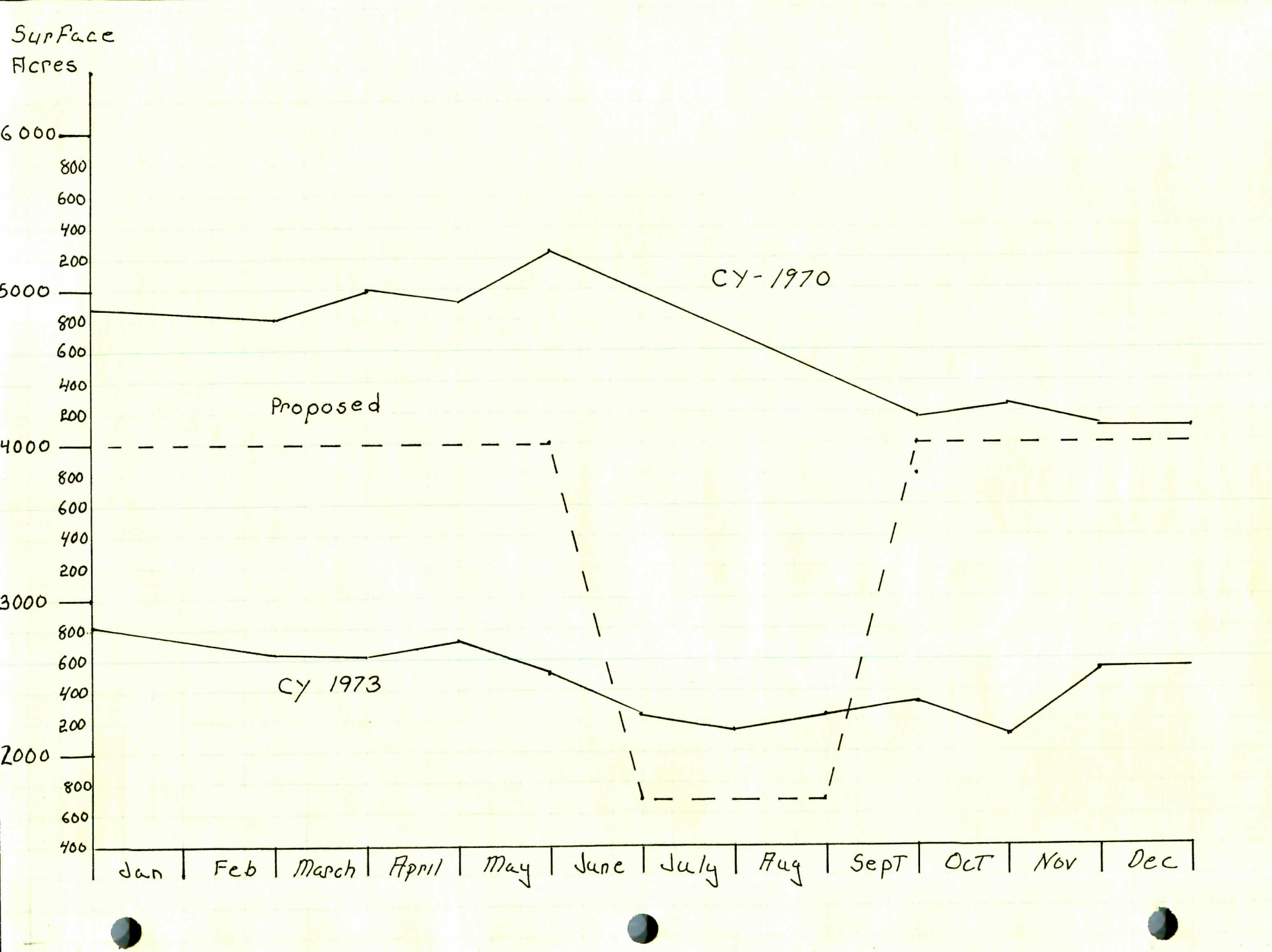
The winter of 1973-74 was mild for north central Montana. Below zero temperatures were recorded on 23 days. The lowest temperature was -28° F. recorded on January 11, 1974. Marsh units froze over on November 2nd when a strong Arctic front passed through the area. Ice break up occurred in mid March.

Refuge marsh units did not receive significant quantities of run-off water during the year. In mid January chinook winds produced daily maximum temperatures in excess of 50° for a three day period. During this period a one foot snow pack melted producing some water production by Lake Creek. An estimated 200 acre feet of water was received.

B. Water

Fiscal year 74 was a year of adjustment in water management policy at Benton Lake. Prior management had been essentially to maintain fairly constant levels within all six pools. This type of management is best typified by CY 1970 (reference graph on following page). By 1971 it became apparent that steps must be taken to control botulism losses. The response was to take certain pools out of operation; some on a long term and others on a seasonal basis. Consequently, by CY 1973 Benton Lake contained significantly less marsh acreage than it had in previous years (reference graph on following page). The results have been the desired reduction in botulism losses and a significant reduction in waterfowl utilization and production.

Future water management objectives call for minimum surface acres of marsh during the botulism season and increased marsh acreages during the fall and spring migration. This will be accomplished by seasonal dewatering of selected units and fall or spring flooding of these units. It is anticipated that this type of operation will allow the refuge to regain lost benefits (waterfowl use and production) and still control botulism losses.


Surface
Acres
6000
800
600
400
200
5000
800
600
400
200
4000
800
600
400
200
3000
800
600
400
200
2000
800
600
400
CY-1970
Proposed
CY 1973
Jan
Feb
March
April
May
June
July
Aug
SepT
OcT
Nov
Dec

C. *Food and Cover*

No specific comment.

II. WILDLIFE

A. Migratory Birds

Migratory waterfowl utilization was down considerably from that received during FY 1973. Total swan use days decreased 50% (down to 11,000 use days from 22,350 use days). Goose use was near normal (58,500 use days) and down only 6% from FY 1973 levels. Duck utilization (7,318,680 use days) was 20% below the FY 1973 utilization level.

Four broods of Canada geese totalling 29 goslings were observed. We are reasonably certain of the presence of an additional brood hatched from a successful nest though we were unable to observe and record it.

Duck Production

Fiscal Year	Ducks Produced	No. of Breeding Pairs
75	?	
74	10,780	2,743
73	13,600	2,790
72	22,000	4,955
71	39,253	3,664
70		7,120

Duck production has been declining steadily the past four years. The primary reason has been a reduction in the breeding pair population. This was a predictable response to decreasing water areas during the spring migration. This trend has bottomed out and a reversal is anticipated now that we are in a position to provide increased marsh habitat during the spring migration.

B. Upland Game Birds

An estimated five coveys of Hungarian Partridge utilized the refuge during the year. Coveys were generally located adjacent to the boundary where the birds moved back and forth between refuge cover and private farm fields.

As usual, only a few Ring-necked Pheasants were observed.

There were no sightings of Sharp-tailed Grouse during the year.

C. Big Game Animals

The Pronghorn Antelope population continues to decline. During the early fall months approximately ten antelope were frequently observed in Grazing Unit 5. The following chart illustrates the dramatic reduction that has occurred in the small antelope population that utilizes the refuge.

Calendar Year	Peak Population
1966	65
1967	40
1968	40
1969	30
1970	30
1971	45
1972	35
1973	10

We are unable to offer a reason for this condition. It is felt that the refuge decline is but a reflection of the downward trend in the antelope herd within this general area.

D. Other Mammals

Long-tailed Weasels were occasionally observed throughout the year indicating a relatively high population of this species.

An aerial reconnaissance made during October of 1973 revealed fifteen coyotes on the refuge.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

No specific comments.

F. Other Birds

The following species of birds were added to the official refuge bird list during the year or since completion of the last narrative report:

Species	Date	Comments
Greater Scaup	11/01/73	Specimen identification - by check
Old Squaw	11/01/73	Specimen identification - by check
Hooded Merganser	11/01/73	Specimen identification - by check
Gray-crowned Rosy Finch	02/25/74	Field observation - Hagedorn
Rufous-sided Towhee	05/25/74	Field observation - Hagedorn
Brewer's Sparrow	10/21/73	Field observation - Stemmerman

G. Fish

No specific comments.

H. Reptiles

We had a close call when College Work Study employee Robert Frisbey stepped on a rattler while clearing tumble weeds from the refuge boundary fence. Frisbey felt the snake strike, but apparently the fangs did not penetrate his boot.

I. Disease

This year 1,760 ducks and 272 other birds died of botulism poisoning. This represents the lowest botulism losses since the original outbreak in 1969.

Calendar Year	Number Ducks Picked Up
1969	800
1970	19,012
1971	10,910
1972	10,437
1973	1,600

The reduction in losses has been achieved primarily by large scale reductions in marsh habitat during the botulism season. During the 1973 botulism season only Pools 1, 2 and 3 were inundated. Pools 1 and 2 have a botulism free history. Only one pool (3) produced botulism conditions.

When botulism conditions were first observed (August 8) Pool 3 elevation was 3615.5. Inflow waters were abruptly increased and elevations rose rapidly to 3617.1 on August 31. It was felt that increasing water levels have been a factor in controlling the outbreak.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Activities were limited primarily to routine operations and maintenance. Notation of the following is made for record purposes.

Power Pumping Station: Number one pumping unit was removed and serviced. The 350 hp motor was checked for defects, cleaned and windings revarnished. The pump received needed repairs ($1,886). The reservoir behind the Muddy Creek dam had silted in. Four thousand four hundred fifty yards of silt were removed during the cleaning operation.

Headquarters Area: An insulated stall was constructed in the metal equipment storage building and provided with heat (gas operated forced air furnace). The stall is used to store the refuge water truck.

A 12 foot by 12 foot bedroom was constructed in the basement of Quarters 82.

Equipment: Purchased a new tractor mounted cement mixer.

Removed the stake dump bed from the Studebaker truck and mounted same on the Dodge truck frame. This action enabled us to reduce the vehicle fleet by one unit.

Installed roll bars on the passenger carrying vehicles. Provided all cargo carrying vehicles with protective barriers.

Unit Four Sub-impoundment: A topography survey was made of the Pool 4 basin. Sub-impoundment proposals were developed and submitted for approval.

Miscellaneous: One quarter mile of boundary fence was rebuilt in Grazing Unit 5.

Eight hundred fifty-six yards of gravel were purchased and hauled to the refuge for future use in our road maintenance program.

B. Plantings

1. Aquatic and Marsh Plants - None

2. Trees and Shrubs

Forty-six acres of shelterbelt plantings were cultivated. The areas were duck foot cultivated in May and disced in late June to control weeds.

3. Upland Herbaceous Plants

DNC Establishment Program: A revised DNC establishment program was developed during the year. This program calls for the establishment of tall and intermediate wheatgrass on 686 acres of previously disturbed sites (abandoned farm fields,etc.) The program incorporates grass establishment with cooperative farming. It calls for wheat or barley to be planted and harvested by the cooperator. The spring following harvest he will seed the stubble cover to grass. Fertilization and weed control will be conducted by either the cooperator or the refuge, depending on the success of the preceding barley crop.

FY 74 Accomplishments: Summer fallow operations were conducted on 141.0 acres of land. This acreage was seeded to barley by the cooperator during the spring of 1974.

In the fall of 1972 a 56 acre site had been seeded to grass. DNC-2? yes Only a partial stand developed. In April of 1974 this site was over-seeded at the rate of 7 pounds PLS/acre. The site was also sprayed to control weeds with 2,4-D at the rate of 0.5 pounds AI.

In April of 1973 a berm dike was constructed around the outer edge of Pool 5. During April of 1974 the berm and associated barrow ditch (25 acres) were seeded to tall wheatgrass at the rate of 7 pounds PLS/acre.

In the spring of 1973 a 51 acre site had been seeded with a DNC-6? yes mixture of tall wheatgrass and Ladack alfalfa. Whenever a legume-grass mixture has been employed at Benton Lake the result has been a pure legume stand. We theorize that the grass seedlings are unable to compete with the more robust legume and die out. By the spring of 1974 the 51 acre site exhibited a fair stand of low vigor grass plants and a good stand of vigorous alfalfa. In late April 2,4-D was applied at the rate of 1.0 pounds AI/acre. Excellent alfalfa control was achieved and the grass plants responded well to the elimination of alfalfa competition. Whether or not the stand will develop into acceptable DNC remains to be seen.

- PNC-73

In the spring of 1973 a second site of approximately 50 acres was seeded to tall wheatgrass only.? An excellent grass stand had developed by the spring of 1974. This site was sprayed with 2,4-D at the rate of 0.5 pounds AI/acre to reduce weed competition.

4. *Cultivated Crops*

Discussed in 3 above.

C. *Collections and Receipts*

1. *Seeds and Other Propagules - None*

2. *Specimens*

The following specimens were donated to North Junior High School, Great Falls, Montana:

Great Horned Owl	*3*
Short-eared Owl	*2*
Barn Swallow	*1*
Common Night Hawk	*1*
Eared Grebe	*2*
Whistling Swan	*1*
Old Squaw	*1*

D. *Control of Vegetation*

Covered in B-2 and 3 above.

E. *Planned Burning*

None

F. *Fires*

None

IV. RESOURCE MANAGEMENT

A. Grazing

During 1973 grazing season Units 2 and 6 were not utilized. Grazing Units 1, 3, 4, 5 and Power were grazed. The grazing season was June 25 through October 15. The fee was $2.75 per AUM. A cow and calf were regarded as 1¼ AUM.

Grazing Unit	Acres	Permittee	AUM's	AUM's/ Acre
I	720.5	Ewing	84.37	.12
III	837.5 native	Golie	84.76	
	690.0 pool basin	LeFebvre	198.50	
		L. Suek	54.29	
Total	1,527.5		337.55	.22
IV	1,036.0 native	Hinderager	199.33	
	1,788.0 pool basin	Prinzing	76.00	
		White	86.44	
Total	2,791.0		361.77	.13
V	1,152.5	G. Suek	140.79	.15
Power	-	R. Lee	38.00	?

During the year Refuge Manager Stemmerman and Land Management Supervisor Ballou met with refuge grazing permittees. The Fish and Wildlife Service's revised grazing policy was discussed with regard to changes it would produce in the Benton Lake grazing program. Permittees were advised that the refuge would conduct an interim grazing program through the 1976 grazing season that would be similar to current and past programs. The permittees were advised that after 1976 the current grazing program would terminate and that they should not depend on refuge grazing being available after that date.

B. Haying

None

C. Fur Harvest

None

D. Timber Removal

None

E. Commercial Fishing

None

F. Other Uses

None

V. FIELD INVESTIGATIONS AND APPLIED RESEARCH

A study was conducted to evaluate duck production potential on native ranges. Study sites were selected to evaluate the following conditions:

Upland native range - subject to annual grazing
Upland native range - prolonged rest
Lowland native range - subject to annual grazing
Lowland native range - prolonged rest

It was concluded that upland native rangelands have little or no duck production potential regardless of whether they are in a grazed or an ungrazed condition.

Lowland native range sites which had been rested from grazing for a prolonged period showed a fairly high production potential from the standpoint of nests per acre. Predation losses, however, appeared to be quite high on these sites. Future studies will be required to obtain an accurate evaluation of predation levels.

VI. PUBLIC RELATIONS

A. Recreational Uses

1. General Visitation

General visitation is a vehicle tour of the refuge for a mix of activities including: wildlife observation, wildlands appreciation, interpretive auto tour and photography. Approximately 8,000 such visits occurred during FY 73 which is the normal level for this activity.

2. Environmental Education

The Great Falls School System again utilized the refuge in its environmental education program. All 5th grade students were given a tour of the refuge. Specific instructions and interpretation were provided by the school system's environmental education staff. This activity produced approximately 2,000 visits.

3. Public Affairs

The refuge produced seven newspaper articles, five radio programs and seven TV programs. Most of these programs and articles dealt with the experimental steel shot hunting program conducted during the 1973 waterfowl season.

B. Refuge Visitors

No specific comments.

C. Refuge Participation

Public Affairs programs covered in A3 above.

The refuge conducted an open house on National Hunting and Fishing Day. The theme of the open house was an explanation of refuge waterfowl hunting regulations and the experimental steel shot program. Attendance was most disappointing.

D. Hunting

The 1973 waterfowl season at Benton Lake opened on October 6 and closed on November 2 when the marsh units were completely frozen over. The experimental steel shot program was generally unsuccessful as relatively few hunters elected to participate. Pertinent

statistical data pertaining to the hunt is as follows. This information was obtained at a mandatory check station which was operated throughout the waterfowl season.

Description	Total No. Hunters	Total Birds Bagged	Birds Bagged per Visit	Cripples Lost per Bird Bagged
Total season	1930	2068	1.1	
Steel shot days - 14	424	592	1.4	.46
Lead shot days - 14	1506	1476	.9	.41

E. Violations

Date	Name	Offense	Court	Action
10/06/73	Charles Johnson	late shooting w'fowl	State	$35.00
10/06/73	Michael Gold	illegal use-lead shot	Warning - Juv.	
10/06/73	Richard Johnson	unplugged gun	State	$35.00
10/06/73	William Tonn	no state license	State	5 days susp.
10/06/73	John McAfee	illegal use-lead shot	Fed.	$25.00
10/06/73	Dan Fisher	unplugged shotgun	State	$35.00
10/07/73	Fred Woyth	hunt closed area	State	$ 7.50
10/07/73	Helmuth Gliewe	hunt closed area	State	$ 7.50
10/07/73	Gary Anderson	late shooting w'fowl	Warning - Juv.	
10/07/73	Kelly Ortez	unplugged gun	Warning - Juv.	
10/07/73	Elwyn Ari	unplugged gun	State	$35.00
10/07/73	Richard Bronson	unplugged gun	State	$35.00
10/07/73	Perley Emery	take Eared Grebe	State	$35.00
10/07/73	Wayne Richman	unplugged gun	Fed.	$25.00
10/13/73	Dewey Sheeves	take Eared Grebe	Fed.	$25.00
10/27/73	James Strutz	take Whistling Swan	Fed.	$25.00
01/04/74	Jon Cahill	illegal hunt - rabbits	Fed.	$25.00
01/04/74	Robert Anderson	illegal hunt - rabbits	Fed.	$25.00
01/04/74	Deura Hutchinson	illegal hunt - rabbits	Fed.	$25.00

F. SAFETY

Numerous actions were carried out to improve the refuge Safety status. A station Safety Plan was developed. All employees (4) attended a 16 hour First Aid training course. As stated earlier, required Safety devices were installed on refuge vehicles and heavy equipment. Protective guard rails were installed around the gas pump. A protective cage for tire inflation was constructed. The following items of protective equipment were purchased: new life jackets, hard hats, ear muffs for noise abatement, resperator and Safety glasses.

Two minor accidents occurred during the year. A College Work Study employee twisted his back while entering the jeep and the maintenanceman had to have a large thorn removed from his arm. He was hit by a large limb while cultivating shelterbelts.

VII. OTHER ITEMS

Mr. Gary Hagedorn (Assistant Refuge Manager) served as Acting Refuge Manager for the period July 1, 1973, through August 10, 1973. Gary transferred to the position of Refuge Manager, Swan River Refuge, effective March 18, 1974.

Lyle Stemmerman transferred from the Flint Hills Refuge in Kansas and assumed the duties of Manager on August 10, 1973.

SIGNATURE PAGE

Submitted by:

Lyle A. Stemmerman
Refuge Manager

Date February 11, 1975

Approved, Area Office:

Date

Burton W. Rounds
Area Manager

Concurrence:

Robert M. Ballou
Chief, Division of Land Management